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470. Shishkin, A. K., Control of the focal plague prevalence in the region northwest of the Caspian Sea. Zh. mikrobiologii, etc. 32 (1961)-5: 9-15. (From the Scientific Research Anti-Plague Institute in Rostov-on-Don.)

According to N. P. Mironov (Ekologicheskie faktory prirodnoi ochagovosti chumy v Severozapadnom Prikaspii [Ecological factors of the natural plague foci in the region northwest of the Caspian Sea], Dissertatsiia dokt. Rostov-na-Donu, 1958), the natural plague focus northwest of the Caspian Sea, which in the past occupied a territory of about 200,000 hectares, was a remnant of the wide spread of the disease in Europe. The frequent outbreaks occurring there in the 14th, 15th, 16th, 17th and 18th centuries were not only due to importation of the infection but partly of local origin. In the latter case wild rodents were the source of infection.

The focus comprised parts of the Rostov and Stalingrad oblasts, of the Stavropol krai as well as the whole of the Kalmyk autonomous republic in its former borders.

In 1950-51 the presence of plague epizootics was established in parts of the Grozny oblast (which now belong to the Dagestan ASSR) and also in the Leninsk, Kizyl-Iurtov, Khasaviurtov and Babiurtov raions of the Dagestan autonomous republic.

As can be gathered from the description given of these extended areas by the author, they consist of semi-desert-steppe regions. Most frequent among the 40 species of rodents met with are sissals (Meriones libani), hamsters (Citellus pygmaeus) and gerbils (Meriones libani). In some part of the focus gerbils (G. tamarascinus and G. meridianus) occur.

In the past the area of the focus was sparsely populated; the inhabitants were mainly occupied with cattle-breeding, doing very little agricultural work. The ecological conditions were most favorable for the rodents, particularly the sissals. The standards of life of the people were extremely low, the medical service deficient. As a result of the insanitary conditions epidemics, including such of plague, were frequent.

The presence of plague epizootics was first established in 1913. From then until 1956 a total of 580 epizootics were recorded, distributed as follows: (See table on page 218)

The main reservoir of the infection was C. pygmaeus, the principal vectors the suslik fleas Nosopsyllus tesquorum and Neopsylla setosa.

The threatening epizootic situation during the period of 1920-1934 made it imperative to take drastic action. In 1933 work was

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<u>Area</u>	<u>Total Epizootics Recorded</u>	<u>First Epizootic Recorded</u>	<u>Last Epizootic</u>
Rostov oblast	286	1913	1938
Stalingrad oblast	74	1913	1934
Astrakhan oblast (right Volga shore)	32	1923-24	1954
Kalmyck ASSR	49	1924	1949
Stavropol krai	91	1924	1936
Groznensk oblast	12	1950	1953
Dagestan ASSR	46	1951	1956
	580	1913	1956

started on an enormous scale to eradicate the susliks completely through repeated 3-5 time in each of the territories concerned. The scope of this work is shown in the following table, the figures of which refer to thousands of hectares:

<u>Period</u>	<u>Rostov oblast</u>	<u>Stalingrad oblast</u>	<u>Volga right-shore of Astrakhan oblast & Kalmyck ASSR</u>	<u>Stavropol krai</u>	<u>Groznensk oblast & Dagestan ASSR</u>	<u>Total</u>
1943-47	7,598.4	6,960	8,420	8,480	-	30,858.4
1948-51	4,224.8	2,248.4	4,909	4,250	-	14,632.2
1952-56	1,248.2	1,696.8	1,267.7	4,084.8	-	7,297.5
1951-56	167.2	792.2	4,591.1	882.1	1,108.1	6,540.7
Total	12,238.5	11,197.4	17,187.8	16,596.9	1,108.1	58,328.7

The work led to a sharp decline in the density of the suslik populations. Already during the first years of the campaign the mean incidence of these rodents per hectare fell from 15-20 to 1-4. As a result the

incidence of epizootics sharply declined, to reach (in the northwestern parts of the focus) zero by 1939.

As direct proof for the absence of plague served the negative results of the bacteriological examination of over 4 million rodents and over 6 million ectoparasites. Further, even though after the termination of the campaigns the numbers of susliks markedly rose, their population density reaching the initial level in a number of localities, no epizootics were observed. Moreover, though now every year millions of susliks are caught for the sake of their skins, not a single instance of plague has been observed among the trappers.

The large-scale implementation of irrigation schemes and a marked increase of agricultural and other ameliorative operations in the Rostov and Stalingrad oblasts and the Stavropol krai undoubtedly contributed to the abolition of factors favoring the continued existence of plague. Almost no work of these kinds was done in the part of the Astrakhan oblast on the right shore of the Volga and in the Kalmyk autonomous republic, where the ecological conditions remained unchanged and the population density of the susliks reached or even succeeded 60 per hectare.

Since the scope of plague-eradication work in the Kalmyk ASSR before and especially during World War II was much below that in the Rostov and Stalingrad oblasts and the Stavropol krai, in 1946 plague epizootics began to appear again in the Kalmyk republic. In 1950 the presence of rodent plague was proved in the neighboring Grozno oblast, in 1951 in the Dagestan ASSR, where the last epizootic was recorded in 1956.

Thus for the last three years^x also this part of the focus had been free from plague. In the opinion of the author this period has to be considered as too short to assert the final disappearance of the infection.

The formal conclusions reached by Shishkin were as follows:

1. The existence of the natural plague focus in the region northwest of the Caspial Sea was conditioned by the high frequency and uninterrupted presence in an area of millions of hectares of the small susliks, the fundamental reservoir of the infection; by the infestation of these rodents by species of fleas capable of transmitting the causative organisms from animal and to harbor it during the interepizootic periods; and by the presence of virulent P. pestis.

2. Recognition of the role of each of these components of the plague biocenosis led to the practical conclusion that, in order to terminate the plague epizootics, one of the links of the chain of circulation of the causative organisms must be eliminated. The small susliks seemed most accessible for such an attack.

^x Shishkin's article was written in 1959.

3. In order to terminate the plague epizootics, from 1933-1956 the susliks have been eradicated in an area of above 58 million hectares, one and the same of each territory being dealt with 3-5 times.

As a result no plague epizootics have been recorded in the focus since 1956. The complex operations to transform the ecological conditions no doubt solidified the results obtained and thus facilitated the liquidation of the natural plague focus.

4. The absence of plague epizootics since 1956 is too short to permit the assertion that the plague in the region northwest of the Caspian Sea has been finally liquidated. A further systematic and thorough investigation of the area is indispensable.

5. The working out of a method for the liquidation of the natural plague foci and its practical application can be considered as one of the outstanding achievements of Soviet public health work.

471. Sil'chenko, V. S., Diseases with natural foci of infection in the Voronezh oblast. Zh. mikrobiologii, etc. 42 (1961) 5: 15-18. (From the Sanitary-Epidemic Station of the Voronezh oblast.)

Up to 1945 only two diseases originating from natural foci of infection were known in the Voronezh oblast, namely rabies and tularemia. Since then tick encephalitis, leptospirosis, Q-fever, ornithosis listerellosis were also found to be autochthonous and the presence of toxoplasmosis is suspected.

In the epidemiology of tularemia three periods may be distinguished:

During the period from 1930-1948 there were only not numerous outbreaks due to professional contact with infected water rats or such of an insect-borne type in the natural foci of the flood-lands. Corresponding to these modes of infection one observed the ulcero-bubonic and the bubonic forms of the disease. The fundamental role in the infection of man was played by the water rats. Outbreaks occurred every year but were not considerable, the number of patients varying from some tens to 200 (1938).

During the period from 1949 to 1949 a new type of the disease became manifest, outbreaks due to infection from mice appearing on farms and in houses during the autumn and winter. Since infection was due to aspiration or of an alimentary nature, the pulmonary, abdominal and tonsillar-bubonic forms of the disease were prevalent. After the winter outbreaks there appeared among the people living in the flood-land foci of the infection large-scale vector-borne outbreaks of the disease. During the period all raions of the oblast affected.

The last period (1950-1959) was characterized by a marked decrease of human tularemia and by the absence of the above mentioned murine type of the infection. In the natural foci of the flood-lands isolated manifestations due to vector-borne infection were observed every summer.

It is noteworthy that, as a result of wholesale vaccination, the people permanently residing in the natural tularemia foci did not contract the infection. Tularemia attacks were recorded only among residents of towns temporarily visiting the foci. Thus mass vaccination brought about a change in the epidemiology of tularemia, which formerly affected the rural and not the urban populations.

Tick-borne encephalitis was first detected in 1946 and 1947 in persons working in the forests of the northern part of the oblast, who had been bitten by ticks. Seven cases were reported at that time and 2 more in 1950 in the same area.

Since its discovery in 1954, the incidence of Q-fever increased, so that up to the present (i. e. 1959) 21 districts were found affected. The outbreaks begin with sporadic attacks in January-February to reach an acme in April-June; then a gradual decrease sets in and the disease is absent during the last months of the year. Owing to a focal existence, in a number of raions Q-fever has been recorded every year for 4-5 years.

The fundamental reservoir of the infection are species of mice and voles; a secondary reservoir is formed by cattle, sheep and goats. Human infections are due most often to contact with fodder which had been contaminated by the rodents; alimentary infections, due to the consumption of raw milk, and contact infections are rarer. Infection by aspiration is thus preponderant and the respiratory organs are most often affected.

So far R. burneti has not been demonstrated in ticks.

Ornithosis was first found in man in 1958, when more than 10 persons working on fowl farms fell ill. In addition to the two localities thus found involved, in 1959 four other raions were found affected. In one of the latter the presence of the infection was detected in wild pigeons as well as in domestic birds. The foci of the infection among the latter are distant from one another, but probably only a minority of them has been detected.

472. Karpov, S. P., Study of the diseases occurring in natural foci by workers in Tomsk. Zh. mikrobiologii, etc. 42 (1961) 5: 4-8.
(From the Tomsk Medical Institute and the Tomsk Vaccine and Serum Institute.)

Results of the Tomsk team of workers on diseases occurring in natural foci have been summarized in two papers by Karpov, appearing respectively in the "Collection of articles on diseases occurring in natural foci" (Sbornik "Prirodnouchagovye zabolevaniia") Moscow, 1958 and in the Vestnik Akademii meditsinskikh nauk SSSR, 1959, No. 10. The present report deals with observations made in 1959 and concerning tick-borne encephalitis, leptospirosis and lymphocytic chorio-meningitis. Since the results obtained are set forth in summary form, the report does not lend itself to the purposes of an analysis but must be consulted in the original or in a full translation.

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473. Pilipenko, V. G., To the problem of the existence of natural tularemia foci in the Caucasus and Transcaucasus and on the methods of eradication of the infection. Zh. mikrobiologii, etc. 32 (1961) 5: 18-25. (From the Scientific Research Anti-Plague Institute of the Caucasus and Transcaucasus, Stavropol.)

As stated by the author, natural tularemia foci are found in the territories of the Caucasus and Transcaucasus in the Stavropol krai; the Dagestan, Cherkeno-Ingush, North-Ossetian and Kabardino-Balkarian Autonomous Republics; and in the Union Republics of Georgia, Armenia and Azerbaidzhan.

In most of the foci situated in the Stavropol krai voles (Microtus arvalis) are the main reservoir of the infection, but in some districts the infection is entrenched among the water rats (Arvicola terrestris). In the former foci tularemia has been known to exist from 1938 up to the present. While the infection was formerly rampant among the voles, within the last 4-6 years the epizootics have shown signs of a regression, due mainly to a decreased incidence of the rodents, brought about in its turn by mechanization and acceleration of the harvesting operations. The decreased frequency of the rodents also led to a decreased incidence of the tick vectors; moreover during the period from 1950-1959 almost 50 million cattle, sheep and horses have been freed from ticks.

Owing to these favorable circumstances, tularemia manifestations in man, which in the past were rampant at times in the Stavropol krai, became rare, only 4 cases respectively being recorded there in 1956 and 1959.

This greatly decreased incidence of the disease was due to the lessened activity of the natural focus and also to large-scale anti-tularemia vaccination; the number of inoculations administered during the period from 1945-1960 amounted to over 1 million (corresponding to over 77% of the rural population).

In the Dagestan Republic two tularemia foci were encountered, water rats forming the reservoir of the infection in one, mice and voles in the other.

In the first mentioned focus, situated in the north of the republic, a considerable tularemia epidemic occurred in 1955, but since then, owing to mass vaccination campaigns, the disease has become sporadic, affecting mostly non-vaccinated persons.

After a considerable epidemic in 1955-56, mass vaccination was also instituted in the southern focus, where the infection was entrenched in mouse and vole species. The total number of vaccinations administered in the whole republic during the period from 1955-1959 amounted 518,548 (equal to 69.3% of the rural population).

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Information regarding the other tularemia foci enumerated above may be tabulated as follows:

<u>Area</u>	<u>Year of Detection</u>	<u>Reservoir</u>	<u>Incidence of Tularemia in Man</u>	<u>History of Vaccination</u>
Checheno-Ingush ASSR	1942	Voies & mice	Sporadic up to 1959	1956-1959 vaccinated 284,203 persons= 67.8% of the rural population
North-Ossetia ASSR	1954	"	?	1957-1959 vaccinated 81,826 persons=38.4% of the rural population
Kabardino-Balkarian ASSR	1941	"	Periodically present up to 1953	1955-1959 vaccinated 116,449 persons=44.9% of the rural population
Georgian SSR	1946	Mainly voles	20 slight cases in 1956 4 cases in 1957	1956-1959 vaccinated 177,302 persons= 7.5% of rural population
Armenian SSR	1949	Water rats or voles & mice	1956-1959 56 cases	1956-1959 vaccinated or revaccinated 400,427 persons= 45% of rural population
Azerbaijani SSR	1958	Water rats	?	1957-1959 vaccinated 148,091 persons= 7.7% of rural population

Commenting upon these observations the author stated that, though almost all of the natural tularemia foci of the Caucasus and Transcaucasus remained active, recently no epidemics occurred. This shows that with the aid of the presently available methods massive outbreaks may be prevented. Most important among the prophylactic measures is vaccination of the population in

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the natural foci, the adjacent areas and also in establishments like meat-packing and sugar factories and in plants handling raw materials like skins and furs. Still, the author continued,

"in spite of the undoubted efficacy of specific vaccination, this method alone cannot eliminate the potential danger of the natural foci. Therefore, when planning mass anti-tularemia vaccination campaigns, it is rational to contemplate also the implementation of measures like constant observations on the degree of activity of the natural foci through systematic epizootological investigation, periodical investigation of unexplored areas so as to find hitherto unknown foci, organization of rodent eradication campaigns..., especially if tularemia epizootics are threatening, systematic campaigns against the ticks infecting the domestic animals and conduct of the harvesting operations... on a high agrotechnical level."

As the author added, the three last mentioned methods were of fundamental value in intensively cultivated areas, where voles and mice were the hosts of the infection.

474. Tarasevich, I. V. and Kulagin, S. M., On the role of birds in the epidemiology of tularemia. Zh. mikrobiologii, etc. 42 (1961) 5: 26-30. (From the Gamaleia Institute of Epidemiology and Microbiology, AMS, USSR.)

Large-scale experiments with chickens led the authors to the following main conclusions:

a) Administration of large doses of Rickettsia burnetii (200,000 and 20 million of guinea-pig-infective doses) failed to provoke a development of the infection in chickens.

b) Elimination of the rickettsiae from the body of the birds was rapid, from the blood and the kidneys within 24 hours, from the spleen and the subcutaneous tissue within two days after infection.

c) As a rule no complement-fixing antibodies were demonstrable in the sera of the infected chicken.

It appeared, therefore, that "a role of the chickens in the epidemiology of Q-fever is doubtful or insignificant."

475. Levkovich, E. N. and Zasukhina, G. D., On the preparation of a tissue culture vaccine against Japanese encephalitis. Zh. mikrobiologii, etc. 42 (1961) 5: 48-42. (From the Ivanovskii Institute of Virusology, AMS, USSR.)

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1.0ml of a 1% solution of 2,3,5, triphenyl-tetrazol chloride and 10ml of 1M glucose; (2) a freshly made suspension of 10 billion of the plague bacilli under test in 1 ml of the phosphate buffer.

To carry out the tests, the author added 1 ml of the reagent (1) to the bacterial suspension (2) and kept the mixture for 30 minutes at 37°C. He then added 8 ml of acetone to extract the triphenylformazn, into which the triphenyl-tetrazol chloride had become converted through the fermentative activity of the living plague bacilli. After the latter had settled down, the red-colored supernatant was used for photocolorimetric tests.

The author recommended to use as standard a graph showing the results of 100 tests with suspensions containing live and dead plague bacilli in varying proportions, as determined by cultivation of suitable dilutions of the suspensions and counting the colonies developing on the plates.

As concluded by the author, the expedient method recommended by him gave results comparable to those obtained with the tedious method of cultivation and colony counting.

478. Luk'ianchenko, A. A. et al., On the influence of the southwest winds on the appearance and spread of tularemia in the Don delta focus. Zh. mikrobiologii, etc. 32 (5) : 55-61.

Observations made in 1955, when tularemia epidemics took place in the area under study in February-March (15 attacks due to contact with water-rats) and again in July-October (125 attacks of vector- mosquito-borne tularemia) led the authors to the following conclusions:

"1. The southwestern winds, under the influence of which the Don delta is periodically inundated by sea-water, favor the origin and wide spread of tularemia among the water-rats as a result of the migration of the animals to, and their concentration in, non-inundated sites, which condition a mixing of the herds and a maximal agglomeration of the animals, facilitating the rise of epizootics and the spread of tularemia to man."

2. The migration and concentration of the water-rats during the inundation periods of inundation constitute a high probability of meeting diseased animals for the insect vectors of tularemia, and the southwestern winds provide for a transport of the infection by the vectors upstream, bringing about the appearance of vector-borne attacks of the disease all over the deltaic focus and beyond its borders.

3. Bearing in mind the influence of the southwestern winds on the rise and spread of tularemia in the deltaic focus of the Don, one cannot only explain the appearance of vector-borne tularemia attacks in man far from the habitats of the water-rats but also prevent such attacks through prophylactic measures."

It is important to note in this connection that, as can be gathered from elaborate tabulations of the authors, only 25 of the 140 above mentioned patients had been vaccinated against tularemia.

(The article, which also contains a short summary of the recent tularemia literature, must be studied in detail by those specially interested in the problems of this infection).

479. Erez, S. L. and Kriukova, Z. V., Atypical pneumonias caused by the ornithosis virus. Vrachebnoe delo (1961) 6: 88-90. (From the Clinic of Infectious Diseases of the Stalinsk Medical Institute.)

The authors observed during the period 1955-58 three small familial outbreaks of ornithosis, characterized by the appearance of atypical pneumonia in 11 of the patients, by the presence of a pleural exudate in the twelfth. All twelve sufferers recovered. The diagnosis of ornithosis was confirmed with the aid of allergic or complement fixation tests. Of the three affected families two kept pigeons among which no mortality had been noted; the third family bred ducks for sale.

On account of these observations the authors stress that, when encountering patients with atypical pneumonia, due attention must be given to the possibility of an ornithosis infection.

480. Koridze, O. A., Functional state of the liver in brucellosis. Vrachebnoe delo (1961) 6:149-150. (From the Therapeutic Clinic I of the Tbilisis State Institute for the Advanced Training of Physicians.)

Studying 70 brucellosis patients, the author established the presence of reversible liver damages, manifested by a diminution of the hippuric acid output and of the rate of glucose utilization.

481. Emel'ianova, O.S., On the virulence of tularemia bacilli isolated from man. Zh. mikrobiologii, etc. 42 (1961) 5: 61-66. (From the Gamaleia Institute of Epidemiology and Microbiology, AMS, USSR.)

The author examined in October 1958 two tularemia strains which had been isolated in May of the same year from tularemia patients with the aid of passage of the material obtained through puncture from cervical buboes through guinea-pigs. Tested on white mice, guinea-pigs and white rats, the two strains proved to be highly virulent. The strains differed neither in this nor in other respects from two strains isolated from a well, the consumption of the water of which had caused the infection of the two patients.

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482. Ochirov, I. D. and Pochekunin, D. I.; Natural tularemia foci in the Chita oblast. (Authors' summary). Zh. mikrobiologii, etc. 32 (1961) 5: 66-67. (From the Chita Oblast Sanitary-Epidemic Station.)

As stated by the authors, in 1955 some tularemia cases had been recorded in the Nerchinsk raion of the Chita oblast and at that time cultures of B. tularensis had been isolated from long-tailed shrews (Citellus undulatus) and the tick Dermacentor nuttalli. A survey of the region concerned was made by the authors in 1959. According to their short note, they failed to demonstrate the presence of tularemia bacilli in pooled specimens from 456 rodents of various species and from 240 ticks (Ixodes persulcatus and D. silvarum) collected from sheep and cattle. However, allergic tests (intracutaneous injection of tularin) gave a positive result in 17 out of 1,549 inhabitants examined. Most of the positively reacting persons were engaged in trapping muskrats or other rodents or in handling the furs of these animals; 5 of them gave a history suggestive of a past tularemia attack.

483. Kalabukhov, N. I., To the problem of the structure and dynamics of the natural plague foci. Zh. mikrobiologii, etc. 42 (1961) 5: 81-85. (From the Experimental Base of the Institute of Microbiology and Epidemiology of the Southeast USSR.)

In this article which does not lend itself to the purposes of a succinct analysis, but which has to be consulted in the original or in a full translation, Kalabukhov polemizes against the contention of Rall and Fedorov (1960), quoted earlier in these reviews, that in each plague focus only one rodent species serves as the fountainhead of the infection. In Kalabukhov's opinion this holds true only of some, but not all the plague foci of the Soviet Union.

484. Biriukova, E. S., Experimental plague in the tamarisk and midday gerbils of the eastern region of Ciscausia. Zh. mikrobiologii, etc. 32 (1961) 5: 91-96. (From the Scientific Research Anti-Plague Institute of the Caucasus and Transcaucasus.)

As stated by the author in the introduction to her article, the susceptibility of the gerbil subspecies Meriones tamariscinus tamariscinus and M. meridianus meridianus, inhabiting the Volga-Ural sandy areas, has been studied by several workers. They found the first mentioned subspecies highly susceptible to the infection, whereas the midday gerbils showed a varying degree of susceptibility to plague, which partly evolved in them in the sub-acute or chronic forms. On account of these differences in susceptibility and of epizootological observations the conclusion was reached that in the Volga-Ural sandy areas the midday gerbils were the main plague reservoir.

Up to the present the role played by the gerbil subspecies Meriones tamariscinus ciscaucasicus and Meriones meridianus nogaorum in the Ciscausian plague focus (situated in the northeastern raions of the Stavropolsk krai and

in the Dagestan ASSR) had not been fully studied. In these areas the gerbils lived side by side with sisels (susliks) and other rodents. Nevertheless the plague epizootics seemed to involve only the susliks but left the gerbils almost untouched.

Further to study the plague situation in this area, the author subcutaneously infected series of 139 tamarisk gerbils and 195 midday gerbils, caught in the localities where plague epizootics had been recorded in the susliks in the past (1930-38), with different doses of two virulent plague strains. Summarizing the results of her observations, the author stated that

"1. The tamarisk and midday gerbils of eastern Ciscaucasia proved under experimental conditions susceptible and highly sensitive to B. pestis: plague showed an acute course and led to death within 2-4 days in 90.4% of the tamarisk and 94.7% of the midday gerbils. Instances of survival were recorded in cases where infective doses not exceeding 100 organisms had been used.

2. The high sensitivity and susceptibility to plague of the tamarisk and midday gerbils together with the peculiarities of their ecology and their slight infestation with ectoparasite-vectors of the infection condition a comparatively small participation of these animals in the maintenance of the plague epizootics in the eastern part of Ciscaucasia."

485. Poberezkin, M. N., Clinical-epidemiological observations in a focus of brucellosis among horses. Zh. mikrobiologii, etc. 32 (1961) 5:117-118. (From the Kuibyshev Oblast Sanitary-Epidemic Station.)

Observations in a kumiss-producing establishment led the author to the following conclusions:

1. Horses are highly susceptible to brucellosis and, apparently, not rarely contract the infection from cattle.

2. Infection contracted by man from horses most often does not lead to manifest illness.

3. The course of human brucellosis infection in the foci of brucellosis among horses is identical with that of bovine brucellosis.

486. Bakulina, L. I., An instance of isolation of the causative organisms of hemorrhagic septicemia from diseased gerbils. Zh. mikrobiologii, etc. 32 (1961) 5:122-123. (From the Leningrad Port and Municipal Anti-Plague Observation Station.)

In the course of plague surveys on the large gerbils (Rhombomys opimus) of the Kyzyl-Kum desert in Central Asia the author isolated three strains of Pasteurella septica (multocida) from animals of this species--two through direct cultivation of their internal organs and one from mice infected

- 486a. Plankina, Z. A. and Ogneva, N. S., An instance of the isolation of pseudo-tuberculosis bacilli from Tian-Shan marmots. Zh. mikrobiologii, etc. 32 (1961) 5:125-127.

The authors isolated from a group of marmots (Marmota baibacina), caught in the Kungei-Alatau mountains of the Kazakh SSR and transported in May 1958 by rail "to one of the bases of the zoocenter, situated near Moscow" 5 typical strains of Pasteurella pseudotuberculosis. Before dispatch the animals had been kept under observation in Frunze for about a month, but they began to sicken and die during transit, the mortality among them continuing after their arrival in Moscow. The authors consequently urged the necessity of a strict control of wild animals in transit.

- 486b. Fortushnyi, V. A. and Ezhova, O. I., Sensitivity of pathogenic microorganisms to antibiotics. Antibiotiki 6 (1961) 5:441-442.
(From the Ukrainian Scientific Research Institute of Experimental Veterinary Medicine, Khark'kov.)

The authors tested the sensitivity of 32 strains of pathogenic microorganisms (including such of the coli-paratyphoid group, Staph. aureus, swine erysipelas, anthrax and bovine brucellosis) in vitro to penicillin, streptomycin, chlorotetracycline, oxytetracycline and levomycetin (cultivation in serial dilutions of these antibiotics in fluid media). As can be gathered from the short notes of the authors, the anthrax and the brucella strains tested proved markedly sensitive to the above enumerated antibiotics.

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with pooled organs of the gerbils. As the author pointed out, the similarity of these organisms to P. pestis might cause diagnostic difficulties in the course of plague surveys, unless adequate differential-diagnostic methods are used. Thus far, however, the hemorrhagic septicemia organisms had not been found in the carcasses of gerbils and their pathogenicity for this species of rodents had not been studied.

487. Bunin, K. V. et al., Some complications due to smallpox vaccination. Sovetskaya meditsina 25 (1961) 5: 73-80. (From the Moscow Infectious Diseases Clinic No. 1.)

According to the introductory statement of the authors, observations in the Soviet Union as well as elsewhere had shown that post-vaccinal complications are inevitable if vaccination against smallpox has to be resorted to in emergencies within a short time and without regard to contra-indications. During the mass vaccination campaign conducted in Moscow early in 1960 following the importation of smallpox in December 1959 the authors observed 71 persons suffering from complications, almost all of whom were hospitalized. It deserves attention that this series of observations does not include patients with complications involving the nervous system, who are admitted to a separate department of the hospital.

With three exceptions the patients seen by the authors could be divided into three groups--26 with mainly local reactions, 17 with secondary vaccinal pustules and 25 with a generalized exanthema and signs of allergy (two with a fatal issue).

Surveying the results of their detailed observations, the authors stated that

1. A reaction at the site of inoculation developed in all patients regardless of the character of the complications. The severity of the local process was different. There was a slight reaction in 15 cases, one of medium severity in 41, a severe reaction in 7, almost 25% of the patients had a hyperergic reaction. In the cases with a fatal issue the local process was of medium severity....

2. One of the outstanding symptoms, almost invariably present, was an increase of the body temperature. Most often fever was observed from the second to the 9th day after revaccination, sometimes later. In the overwhelming number of the patients the temperature reached 38.0-39.0°C or even 40.0, and only in 11 was it subfebrile.... The fever was continuous in 25% of the patients. The length of the feverish period varied from one to 60 or more days: usually the fever lasted for 2-8 days.

3. In all patients general symptoms were present, consisting of debility, malaise, headache, rigor, etc.

4. The general severity of the illness was more or less independent from the form of the complications: there were 18 cases of severe illness with marked intoxication, 35 of medium severity and 15 of a slight character."

The authors noted that, in contrast to what was usually stated in the literature, the complications seen by them appeared not after primary smallpox vaccination but after revaccination. They admitted, however, that their patients, many of whom were over 50 years old and had been vaccinated for the first time in their childhood, had lost their immunity.

In their conclusions the authors stressed that, whenever possible, persons suffering from affections of the circulatory system and such with recurring skin diseases ought not to be immunized against smallpox.

488. Ter-Vartanov, V. N. and Kozlov, M. P., On the intensity index of the brucellosis incidence in man. *Zh. mikrobiologii, etc.* 32 (1961) 6: 55-59. (From the Scientific Research Anti-Plague Institute of the Caucasus and Trans-Caucasus.)

In the opinion of the authors the usual method of using the morbidity in population groups of 10,000 as a yardstick for assessing the frequency of a disease does not give quite reliable results in the case of brucellosis. Since the occurrence of this disease in man is conditioned by its frequency in the domestic animals, particularly in sheep and goats, one would expect the incidence of brucellosis in man would be higher in the republics with intensive breeding of domestic animals and with a high incidence rate of the infection among the latter than in the republics with a low infection rate among the animals. This postulate is not supported by the data of the following table, depicting the situation in 1957:

<u>Administrative Unit</u>	<u>Morbidity Index per 10,000 population</u>	<u>Percentage of Brucellosis in</u>	
		<u>Sheep & Goats</u>	<u>Cattle</u>
Armenian SSR	2.4	6	4.1
Kabardino-Balkarian ASSR	0.5	0.9	0.3
Stavropol' Krai	2.5	0.6	0.6
Georgian SSR	1.2	0.6	0.5
Azerbaijani SSR	0.4	0.5	1.6
North-Ossetian ASSR	0.5	0.5	1.1
Dagestan ASSR	1.1	0.3	3.1

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Commenting upon the figures of this table, the authors drew particular attention to the Stavropol'Krai where, in spite of a low brucellosis incidence rate in the domestic animals, the incidence of the disease in man was highest. Since this discrepancy was possibly the result of a faulty organization of the anti-epidemic work, the authors made a detailed comparative study of the measures taken there and in the other areas under investigation. It was found that in a number of the republics in which the index of human brucellosis was lower, the measures taken against this infection were less thorough than in the Stavropol'Krai.

Generally speaking, comparing the quality of anti-brucellosis work, the epizootic situation and the brucellosis incidence rate in man, the authors became convinced that the index of the human incidence of the disease did not indicate the true epidemic situation. The reason was that, when determining the index, consideration was given to the total number of people in the various administrative units, including the rural populations, which were particularly exposed to the infection, as well as the urban populations, the inhabitants of raions with intensive breeding of domestic animals as well as of industrialized raions, etc.

The proportion of the rural and the urban populations differed in the various areas. The former amounted to 50.5 in the Azerbaidzhan, Armenian and North-Ossetian republics, to 70% in the Stavropol'Krai and in Dagestan.

In brucellosis the morbidity in man is conditioned in the first line by the infection rate in the domestic animals and the contact the people have with the latter--factors which are not considered when determining the morbidity index. The intensity of cattle and sheep breeding in the various republics is different, it is highest in the Stavropol'Krai (0.3 sheep and 0.3 cattle per inhabitant in 1957). In Dagestan the corresponding figures are 3.2 and 0.5, in the Armenian SSR 1.1 and 0.9, in Azerbaidzhan 1.2 and 0.9, in the Kabardino-Balkarian ASSR 1 and 0.4, in Georgia 0.9 and 0.9 and in the North-Ossetian ASSR 0.6 and 0.2.

Considering these differences, the authors concluded that the average number of people coming in contact with the domestic animals and the raw material obtained from the latter must have been 4-6 times higher in the Stavropol'Krai and in Dagestan than in the other areas. As a consequence the absolute number of brucellosis patients was as a rule lower in the republics with less developed husbandry. If the population level is high, in such republics the comparative morbidity index will be low, even though the brucellosis situation in them may be considerably worse than in the republics with highly developed breeding of domestic animals. Out of the 73 raions of the Georgian SSR sheep and cattle breeding is concentrated in the 26 south-eastern raions. There 90% of all brucellosis attacks in the republic take place, whereas more than half of the population of the republic has nothing to do with husbandry. Out of all areas of the Caucasus and Trans-Caucasus the number of recently infected brucellosis patients in 1957 was highest in

Georgia. Nevertheless, the index of brucellosis incidence, determined in relation to the total population, was considerably lower there than in the other republics. Thus the serious epidemic situation in the 26 sheep- and cattle-breeding raions was camouflaged.

In the North-Ossetian ASSR in 1957 25 recent brucellosis attacks were recorded in a population of 449,000 (morbidity index 0.5). In comparison with this in the Aleksandrov Raion of the Stavropol' Krai, with a population of 60,000 and a number of domestic animals equalling that of the North-Ossetian ASSR, 6 people fell ill with brucellosis in 1957 (morbidity index 1.0). Thus the brucellosis situation in this republic appeared to be less serious than in the Aleksandrov Raion.

On account of a low brucellosis morbidity index, some of the republics are considered to be comparatively little affected by this infection. No serious attention is paid to anti-brucellosis campaigns by the health authorities of such areas and as a result fresh brucellosis attacks continue to occur for years at about the same level. In view of this and of the potential danger of such situations the authors propose the use of an additional index to estimate the incidence of human brucellosis per 10,000 heads of sheep and cattle. To establish this index, one takes account of the new brucellosis attacks during the year in question and of the number of cattle and sheep in the area concerned, or better only of the number of sheep. At the same time one determines the number of cattle and sheep per inhabitant. A compilation of such data is shown in the following table:

<u>Administrative Area</u>	<u>Morbidity Index per 10,000 population</u>	<u>Morbidity Index per 10,000 Cattle & Sheep</u>	<u>Number of Domestic Animals per Inhabitant</u>	
			<u>Sheep</u>	<u>Cattle</u>
Armenian SSR	2.3	1.5	1.1	0.4
Georgian SSR	1.2	1.4	0.4	0.4
North-Ossetian ASSR	0.5	0.6	0.6	0.2
Stavropol' Krai	2.5	0.5	0.3	0.5
Kabardino-Balkarian ASSR	0.5	0.4	1.0	0.4
Dagestan ASSR	1.1	0.4	1.2	0.5
Azerbaijani SSR	0.4	0.2	1.2	0.4

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According to the first column of this table, the epidemic situation in the Stavropol'Krai appears to be most serious. If the relation of the human attack rate to the total number of domestic animals is assessed, the situation appears to be different, the Armenian and Georgian republics taking the first place. Even in the North-Ossetian Republic the situation is more serious than in the Stavropol'Krai. If consideration is given also to the number of domestic animals per inhabitant, one finds that, though the husbandry is comparatively little developed, the epidemic situation is more threatening in Armenia, Georgia and North Ossetia.

In the Stavropol'Krai, notwithstanding a more highly developed state of husbandry, the situation seemed less threatening than in the three just mentioned areas. Actually the brucellosis incidence in the Stavropol'Krai became lower in 1958 and 1959.

It thus seems that the morbidity index per 10,000 domestic animals (which was comparatively low in the Stavropol'Krai) permits a better appreciation of the brucellosis situation and thus gives the possibility of an adequate conduct of the prophylactic work.

The conclusions of the authors were that

1. The intensity index of brucellosis incidence per 10,000 population is insufficient for an appreciation of the epidemic situation.
2. A determination of the morbidity per 10,000 people, which takes account of the proportion of the urban and rural populations gives a better idea of the spread of brucellosis.
3. When assessing the brucellosis situation in a raion, account must be taken of the development of husbandry, specially the number of sheep and goats.
4. For a more correct appreciation of the brucellosis situation it is recommended to estimate additionally the incidence of brucellosis in man per 10,000 domestic animals with due account of the intensity of the breeding of the latter per capita of the population.

489. Shefarshtein, D. L. et al., The epidemiological significance of the transition of Brucella melitensis into the cattle (according to the material of the Stavropol'Krai). Zh. mikrobiologii, etc. 32 (1961) 6: 59-61. (From the Sanitary-Epidemic Station of the Stavropol'Krai.)

The authors describe a brucellosis outbreak in the spring of 1957, involving all the 11 persons who had consumed the milk or milk products obtained from one cow, afterwards found to be infected with Br. melitensis.

Apparently the animal had contracted the disease when pasturing with brucella-infected sheep during the summer of 1956, her latent infection becoming active after she had given birth to a calf.

490. Kozlov, M. P. et al., To the problem of the high primary attendance rate of brucellosis patients in the Trans-Caucasian republics. Zh. mikrobiologii, etc. 32 (1961) 6: 61-66. (From the Scientific Research Anti-Plague Institute of the Caucasus and Trans-Caucasus, Stavropol'.)

The authors point to errors in the statistics showing the respective incidence of acute and chronic brucellosis in patients seeking medical aid for the first time and propose improved methods for taking the records.

491. Kriukova, Z. V. and Kremneva, Z. IA., On the causes of brucellosis relapses and anti-relapse treatment. Zh. mikrobiologii, etc. 32 (1961) 6: 66-70. (From the Clinic of Infectious Diseases in the Stalinsk Medical Institute.)

Observations on 226 brucellosis patients, recorded in detail, led the authors to the following conclusions:

1. Of importance for the development of brucellosis relapses are the prolonged harborage of the causative organisms in the body and the insufficient action of the presently available therapeutic agents. Factors provoking the relapses were often exposure to cold temperatures, physical fatigue, concomitant diseases, misuse of alcohol and exposure to sunlight and heat (insolation).

2. Relapses were observed in 40% of the brucellosis patients undergoing one course of treatment (with antibiotics, brucellosis vaccine, tissue therapy).

Combined treatment with streptomycin and sinthomycin gave best results in regard to a restoration of the working capability as well as to a lowered incidence of relapses.

3. In the brucellosis patients who at various intervals after the termination of the course of initial treatment received anti-relapse treatment, relapses appeared 8 times more rarely.

4. Treatment for the prevention of relapses ought to be started within 10-20 days after completion of the initial course of treatment.

5. Anti-relapse therapy with streptomycin and sinthomycin in combination was more effective than treatment with other therapeutic agents (sinthomycin, biomycin, vaccine therapy or tissue therapy).

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492. Ostrovskaya, N. N., Characteristics of the brucellosis bacteriophage TB. Zh. mikrobiologii, etc. 32 (1961) 6: 70-78. (From the Gamaleia Institute of Epidemiology and Microbiology, AMS, USSR.)

Exhaustive studies led the author to the following main conclusions:

1. The brucellosis phage TB, isolated from effluents, was found to be most active among all known brucellosis phages.
2. The TB phage was found to be type-specific, lysing the brucellae of the abortus type.
3. The cycle of the development of the TB phage was slow, corresponding to the development cycle of the brucellae. Even under optimal conditions an increase of the phage titer was seen only after a contact of the phage with the bacterial cells for 9-12 hours at 37°C. The kind of medium used was of great importance in this respect, best results being obtained with a yeast-fish hydrolysate medium.
4. The brucellosis bacteriophage could be preserved throughout the observation period of 2 years at 4-6°C in the refrigerator or at room temperature in broth or in alkaline buffer solutions (pH 7.3 or 8.3).
5. The TB bacteriophage was thermostable, becoming killed after an exposure to 85-90°C for 30 minutes. It was fairly resistant to the vapours of 40% formol and 5% carbolic acid; 10% carbolic acid killed the TB phage already after 5 minutes.

493. Olsuf'ev, N. G. et al., Optimal periods for testing the skin reaction in persons immunized against tularemia with dry live vaccine, with observations on its inoculability, reactogenicity and immunogenicity. Zh. mikrobiologii, etc. 32 (1961) 6: 92-98. (From the Department of Infections with Natural Foci of the Gamaleia Institute of Epidemiology and Microbiology, AMS, USSR; the Departments of Specially Dangerous Infections of the Voronezh, Leningrad, Moscow, Smolensk, Stalingrad, Tambov and Tula Oblast Sanitary-Epidemic Stations and the Omsk Institute of Epidemiology, Microbiology and Hygiene.)

This report embodies the results of observations made on 13,322 persons vaccinated, and on 5,401 persons revaccinated against tularemia in 8 oblasts of the RSFSR with vaccine series prepared respectively in the Gamaleia Institute with the re-constituted Gaiskii strain No. 15 and Emel'ianova's strain No. 155. Since the text of the report does not lend itself to the purposes of a brief analysis, it must be studied in the original or in a full translation by those specially interested in the subject of tularemia vaccination.

The general conclusions reached were that

1. The optimal time for the first reading of the results of the skin reaction in persons inoculated with dry tularemia vaccine, including individuals vaccinated for the first time as well as revaccinated (super-immunized) persons, is the period from the 5th to the 7th day after vaccination. The second reading ought to be made on the 12th-15th day, only in persons in whom no reaction had been observed on the first inspection.

2. The vaccine series studied were endowed with a good inoculability (skin reactions in 98% of the primarily vaccinated), produced general and regionary reactions in only 3-6% of the primarily vaccinated and in 10-20% of the revaccinated and proved highly immunogenic, one year after vaccination allergic skin reactions being seen in 94% of the primarily vaccinated.

3. The vaccine series prepared from the two above mentioned strains showed an identical inoculability and immunogenicity; however, the reactogenicity of the series prepared from strain 155 was two times lower than that of the vaccines made from the Gaikii strain.

494. Savitskaia, M. P. et al., Experience on the cultivation of R. burneti in tissue cultures. Zh. mikrobiologii, etc. 42 (1961) 6:121-125. (From the Gamaleia Institute of Epidemiology and Microbiology, AMS, USSR.)

The studies of the authors showed that Rickettsia (Coxiella) burneti grow well in monostatal cultures of chick embryo fibroblasts in a fluid medium containing tyrode solution, chick embryo extract, inactivated horse serum and tryptic casein hydrolysate. In order to obtain good results, sufficiently large inocula must be added to the culture of the growing fibroblasts on the third day of their explantation and the cells of the culture must remain in an active state. Maximal development of the rickettsiae in the tissue cultures was noted on the 7th-8th day of cultivation. Passage of the organisms from tissue culture to tissue culture was found to be possible.

In the opinion of the authors their investigations open the way for mass cultivation of R. burneti for the purposes of antigen preparation and vaccine manufacture.

495. Zhukov, L. N. and Sukhukova, R. P., On a brucellosis outbreak in the Sverdlovsk Oblast. Zh. mikrobiologii, etc. 42 (1961) 6:129-130. (From the Sanitary-Epidemic Station of the Sverdlovsk Oblast.)

In this note the authors described a bacteriologically confirmed brucellosis outbreak caused by Br. melitensis and taking place in one of the large industrial towns of the Sverdlovsk district, which involved 14

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persons in 4 families. All the patients had either been in contact with, or had used raw milk or milk products from a cow owned by the first-affected family, which was afterwards found to be infected with brucellosis. Possibly the infection of the cow was due to the consumption of hay bought in the Cheliabinsk Oblast, where brucellosis persisted in the sheep.

496. Iudelovich, I. S. and Polikarpova, I. I., On the epidemiology of tick encephalitis in the Latvian SSR. Meditzinskaja parazitologija i parazitarnye bolezni 40 (1961) 4:301-304. (From the Republic Sanitary-Epidemiological Station of the Latvian SSR.)

As shown by the following tabulation, tick-borne encephalitis and its variant, two-wave meningo-encephalitis, which appeared to be rare in the past, occurred perennially in the Latvian Republic during the period from 1955-1957:

<u>Year</u>	<u>Tick-borne encephalitis</u>	<u>Two-wave meningo-encephalitis</u>	<u>Total</u>
1955	2	3	5
1956	24	26	50
1957	1 (fatal)	6	7
<hr/>			
Totals	27	35	62

The seasonal incidence of the 62 attacks was as follows:

<u>Year</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>Total</u>
1955	1	-	-	4	-	-	5
1956	4	13	19	13	4	2	50
1957	-	1	-	3	3	-	7

Almost all the patients lived in forested rural areas, being thus exposed to bites by the two prevailing tick species--Ixodes ricinus and the less widely spread Ixodes persulatus. However, 17 out of the 26 patients with two-wave meningo-encephalitis seen in 1956 seemed to have become infected through the consumption of unboiled goat milk.

Tick-borne encephalitis appeared to be endemic in at least one area, the Talsinskii raion.

The use of DDT dust in a dosage of 50 kg per hectare round tick-encephalitis infected farms proved effective against the ticks.

497. Levit, A. B. et al., Experience of the use of polychlorpinene, sprayed from airplanes, to fight Ixodes persulcatus ticks in large forest areas of the Kuibyshev oblast in 1959-1960. Medit-sinskaja parazitologija, etc. 30 (1961) 3:315-317. (From the Sanitary-Epidemiologic Station of the Kuibyshev Oblast.)

As described by the authors, application of 30 liters amounts of polychlorpinene emulsions, prepared from 1 kg of a 65% concentrate of the compound with 27 liters of water, per hectare lowered the incidence of Ixodes persulcatus in the treated areas 98.5-99.7%. However, in the years following the campaigns, the number of ticks rose again, reaching in some places potentially dangerous levels.

498. Volynskii, B. G. et al., Some toxicological data on new hydroacridine compounds with insecticidal properties. Medit-sinskaja parazitologija, etc. 30 (1961) 3: 457. (From the Saratov State Medical Institute.)

The authors of this brief note enumerate 7 new hydroacridine compounds prepared in the Saratov Medical Institute, some of which exerted a marked pulicidal action. The new compounds proved toxic for white mice, rabbits and cats, if administered by injection, internally or by inhalation. If given subcutaneously, the alpha and beta isomers of 9-methyl-perhydro-acridine proved most toxic (DL₅₀ 0.0005g/kg). 9-methyl-perhydroacridine was also most toxic if administered by inhalation.

The new compounds caused no local reactions and were partially not absorbed through the intact skin.

499. Boiko, V. A., To the methods of collecting and counting Ixodes persulcatus ticks in the foci of tick-borne encephalitis. Medit-sinskaja parazitologija, etc. 30 (1961) 3:357-359. (From the Scientific Research Institute of Epidemiology and Hygiene in Kazan'.)

The short text and the three illustrations of this note must be consulted in the original.

500. Kravchenko, A. T. et al., Action of antibiotics and specific sera on the development of viruses and rickettsiae in tissue cultures, studied with the aid of microcinematography. First report. Action of penicillin on the psittacosis virus and on Rickettsia burneti in tissue cultures. Voprosy virusologii 7 (1961) 3: 300-306. (From the D. I. Ivanovskii Institute of Virology, AMS, USSR, Moscow.)

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Commenting on the results of their observations made in cultures of He La cells, the authors stated that the presence of penicillin in the medium did not prevent the penetration of the psittacosis virus and of R. burneti into the cells and the development of the infectious process in the latter.

Still, under the influence of penicillin, considerable morphological changes of the virus and rickettsia particles take place which may lead to an increase of the size of individual particles. The psittacosis virus particles changed by penicillin are incapable of undergoing division^{x1}.

The morphological changes of the virus and rickettsia particles also take place in already developed colonies of the organisms. This demonstrates the penetration of the antibiotic into the cells and its immediate action on the organisms.

Under these conditions, not all virus and rickettsia particles undergo visible morphological changes. These differences depend evidently on a selective action of penicillin on different developmental stages of the organisms.

Notwithstanding the morphological changes of the particles, caused by penicillin, the colonies of the organisms continue to grow and develop.

The formal conclusions of the authors were that

1. Intravital observations made with the aid of microcinematography permit the observation of the action of antibiotics on viruses and rickettsiae within the cells of tissue cultures.

2. Penicillin causes marked morphological changes of the psittacosis virus and R. burneti particles in the tissue cultures, but but does not hinder the penetration of the particles into the cells.

3. Penicillin does prevent the development of the virus and rickettsia colonies which leads to the death of the infected cells.

4. Under the action of penicillin marked and irreversible changes of the structure of the psittacosis virus particles take place.

^{x1} As stated in the English summary, this also held true in the case of R. burneti.

501. Kravchenko, A. T. et al., Action of antibiotics and specific sera on the development of viruses and rickettsiae in tissue cultures studied with the aid of microcinematography. Second report. Action of terramycin on the psittacosis virus and on Rickettsia burneti in tissue cultures. Voprosy virusologii 7 (1961) 3: 307-310. (From the D. I. Ivanovskii Institute of Virusology, AMS, USSR, Moscow.)

The authors thus commented on the results of their observations:

Terramycin, which is used for the treatment of psittacosis and Q-fever, exerts in tissue cultures a marked therapeutic effect, which leads to a termination of the development of the infectious process. In the concentrations used, terramycin, while not influencing the functional state of the cells, exerts a marked virus- and rickettsia-static effect. This is confirmed by the fact that, notwithstanding a prolonged action of the antibiotic on the intracellular colonies of the organisms, after the removal of the antibiotic their infective properties are unchanged and the infectious process continues. In the presence of terramycin the cells are capable of fighting against the infection. This is proved by a reduction of the size of the virus and rickettsia colonies, the cessation of the Brownian movement of the organisms and the preservation of the mitotic activity of the cells.

Still, the antibiotic does not exert a destructive action on the corpuscular particles of the organisms and as a result of this they penetrate without hindrance into the cells and continue their development if the antibiotic is removed from the nutrient medium.

In contrast to penicillin, terramycin does not change the morphological properties of the organisms visible under the microscope. On account of this difference one may conclude that there is a difference in the places where the two antibiotics act on the various biochemical systems of the organisms.

The formal conclusions of the authors were that

1. Terramycin exerts a static action on the psittacosis virus and on R. burneti.
2. If added to the cultures simultaneously with these organisms, terramycin hinders the development of the infectious process, but does not exert an influence on the adsorption of the organisms and on their penetration into the cells.
3. If introduced at the time when the psittacosis virus or R. burneti have formed colonies within the cells of the tissue cultures, terramycin stops the development of the infectious process.

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4. Under the influence of terramycin the intracellular colonies of the organisms become smaller, but the number of corpuscular particles in the cells remains unchanged and their morphological properties are not altered.

5. Removal of the antibiotic leads to a renewed development of the psittacosis virus and R. burneti in the tissue cultures.

502. Andzhaparidze, O. G. and Bogomolova, N. N., Interaction between the tick encephalitis virus and sensitive cells in vitro. Second report. Latent infection of the cells. Voprosy virusologii 7 (1961) 4:404-407. (From the Moscow Scientific Research Institute of Virus Preparations.)

In their first communication^x, which appeared in Voprosy virusologii 7 (1961) 2: 146, the authors reported that in 40 out of 41 different tissue cultures tested a multiplication of the virus of tick-borne encephalitis took place, but that only in 6 instances the virus produced degenerative changes in the culture cells, while otherwise the infection of the cells appeared to be latent in character.

For a special study of such latent infections, the authors utilized the human cell strain Hep-2, obtained by Moore et al. (Cancer Research 15 [1955], 598). The conclusions reached were as follows:

1. During an observation period of 10 months, in the course of which 27 transfers from a Hep-2 tissue culture initially inoculated with the tick-encephalitis virus were made, no signs of specific degenerative changes in the tissue culture cells could be detected.

2. The number of cells in the infected tissue cultures increased in the course of the transfers 1.2-8 times.

3. As shown by tests in intercerebrally infected mice, a reproduction of the virus took place throughout all passages.

4. Latent infection of the Hep-2 cells with the tick-encephalitis virus did not alter the susceptibility of the cells to the viruses of poliomyelitis, vaccinia and influenza, but markedly decreased the susceptibility of the cells to the virus of western equine encephalomyelitis.

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See review on no. 256.

503. Evdoshenko, V. G. et al., An experimental study on the possible routes of sisels and on the excretion of Q-fever infection of sisels and on the excretion of the causative organism of this infection. Voprosy virusologii 7 (1961) 3:353-356. (From the Kirgiz Institute of Epidemiology, Microbiology and Hygiene, Frunze.)

Besides in man and domestic animals, evidence of Q-fever infection was found in northern Kirgizia in commensal mice, hedgehogs and three species of wild rodents, the siset Citellus relictus, the jerboa Alactaga Jaculus and the hamster Cricetulus relictus and an allied species (Citellus fulvus) showed that

1. It was possible to infect these rodents with Q-fever rickettsiae by the oral and subcutaneous routes and also with the aid of nymphs of the tick Hyalomma plumbeum.

2. Infection of the sisels by any of these routes resulted in a prolonged presence of the causative organisms in the blood of the animals and in an excretion of the rickettsiae in their urine and feces.

Evaluating the importance of these findings, the authors pointed out that the sisels, which did not succumb to the infection, might form an important reservoir of Q-fever, passing on the infection not only through ticks feeding on them but also directly through their urine and feces. Generally speaking, the presence of Q-fever in wild rodents might lead to the infection of domestic animals feeding in places inhabited by infected rodents, and also to the infection of people working in the fields. Thus, the authors postulated, "the orbit of the circulation of the Q-fever virus appears to be much wider than has been assumed thus far."

504. Riazanov, V. A., Criteria for the assessment of the action of small concentrations of atmospheric pollutions on the body. Gigiena i sanitaria 26 (1961) 6: 3-8. (From the Central Institute for the Advanced Training of Physicians.)

The author established in 1949 (see Gigiena i sanitaria [1959] 5:4) the following criteria for the permissible concentrations of pollutions in the air:

1. An admissible one can consider only those concentrations of a given substance in the atmospheric air which neither directly nor indirectly exert a harmful or unpleasant action on man, do not lower his working capacity and do not influence his feeling of being well and his mood.

2. A state of habitualness to harmful substances must be considered as undesirable and as a sign that the given concentration of a harmful substance is not admissible.

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3. Not admissible are also those concentrations of harmful substances which exert an unfavorable influence on the vegetation, climate, atmospheric visibility and conditions of life of the population.

As the author discusses in the present paper, these criteria are not fully sufficient, for, as he states,

"as criterium for assessing the admissibility of one or another concentration of an abnormal substance in the air serves not only the absence of a harmful action or a smell, but also inhibiting or stimulating influences acting under the threshold of the sensorium."

In the authors opinion, the criteria for the evaluation of air pollution in communal public health work must be more stringent than those prescribed for factories, where the workers are exposed to harmful influences only for 6-7 hours.

505. Eremiam, A. V., The clinical picture and differential diagnosis of smallpox (according to the materials of the epidemic of imported smallpox in Moscow in January 1960). Sovietskaia meditsina 25 (1961) 6: 90-1. (From the D. I. Ivanovskii Institute of Virology, AMS, USSR and the Moscow Municipal Infectious Diseases Hospital No. 2.)

As already referred to in these reviews, the smallpox outbreak at Moscow in January 1960 was due to the arrival of an airplane passenger from Delhi (India) who fell ill with variola one day after he had reached Moscow on 24 December 1959, but was hospitalized only on December 27.

During this outbreak the author observed 40 smallpox patients, out of whom only 11 had been revaccinated in 1957, while the other 33 had not been previously revaccinated. However, out of this group 17 were revaccinated during the incubation period and 16 in the initial stage of the disease with the following results:

<u>Type of the Disease</u>	<u>Total No. of Patients</u>	<u>Not Revaccinated</u>	<u>Results of Revaccination</u>		
			<u>Negative</u>	<u>Weakly Positive</u>	<u>Positive</u>
Severe	2	2	-	-	-
Moderately Severe	9	4	5	1	-
Slight	33	6	15	4	9

Thus, out of the 33 recently revaccinated patients none was severely affected, only 6 had moderately severe attacks and in 27 the disease ran a mild course.

Clinically the patients could be classified into three groups as shown in the following table:

<u>Form of the Disease</u>	<u>Total No. of Patients</u>	<u>Severity of the Illness</u>		
		<u>Slight</u>	<u>Moderate</u>	<u>Severe</u>
Transitory between variola purpura haemorrhagica and variola discreta	2	-	-	2
.....				
Variola discreta	2	-	2	-
.....				
Varioloid	17	11	6	-
.....				
Smallpox without exanthema	3	2	1	-
.....				
Totals	44	11	9	2

Quoting representative histories, the author characterized the clinical features of these various forms of the disease. He referred also to 77 patients who, though admitted with the diagnosis of smallpox or as suspects, were found to suffer from the following diseases:

Chickenpox.....	19
Postvaccinal complications.....	21
Skin affections.....	33
Lupus, trichinellosis, measles, etc.....	4

Total	77
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Also quoting histories, the author discussed the features distinguishing these affections from smallpox.

The general conclusions drawn by the author were that

1. The smallpox outbreak at Moscow during the period from December 1959 to January 1960 led to the appearance of various forms of the disease. Side by side with typical attacks one saw modified forms (varioloid, afebrile forms and smallpox without exanthema), the appearance of which was largely determined by differences in the state of post-vaccinal immunity of the patients.

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2. The severity of the attacks depended mainly upon the time of vaccination. The persons who had been vaccinated in childhood and had not been revaccinated within a period of more than 10 years suffered from vaccinated when incubating the disease or in the early stages of illness had mostly slight attacks.

3. Secondary waves of fever were never observed. Formation of deep scars was also absent.

4. The modified forms of the disease created serious diagnostic difficulties, particularly if skin manifestations were scarce or altogether absent and also when there was no fever.

5. The presently available laboratory methods permit in most instances a confirmation of the clinical diagnosis. In 41 patients investigated with the aid of laboratory methods the clinical diagnosis was confirmed in 25 instances by isolation of the virus, in 10 instances by the detection of Guarnieri or Paschen inclusion bodies and once through the presence of a high level of antibodies to the smallpox virus in the serum of a high level of antibodies to the smallpox virus in the serum of the patient concerned.

6. Specific hyperimmune anti-smallpox gamma-globulin proved therapeutically effective in patients suffering from smallpox during the stage of marked intoxication and with marked intoxication and with marked skin manifestations.

Administration of prednison (a de-sensitizing drug) proved useful in patients with marked or generalized vaccinia manifestations.

506. Slavin, G. P. and Tyrkova, E. S., Epidemiological analysis and its significance in the elimination of infections. Communication I. To the problem of the theoretical and organizational premises for the elaboration of a method of epidemiological analysis. Zh. mikrobiologii, etc. 12 (1961) 7: 4-6.

Emphasizing the difference between a mere statistical analysis and an adequate epidemiological evaluation of the manifestations of infectious diseases, the authors make the following proposals:

1. At present, in connection with the problem of liquidating some of the infections and of markedly decreasing the incidence of the others it is extremely necessary to revise the existing methods of the epidemiological analysis of the morbidity and of the observation of sporadic foci.

2. It is necessary soon to devise new methods for the epidemiological observation of the foci and epidemiological analysis. The aim of the latter ought to be an elucidation of the causes for the rise and development of the epidemic processes, thus leading to a constant improvement of the anti-epidemic work.

3. Corresponding changes must be made in the programs of teaching epidemiology in the sanitary-hygienic faculties of the medical institutes and in the institutes for post-graduate training.

4. The medical journals, like the Zhurnal mikrobiologii, etc., Sanitaria i gigiena, Meditsinskaya sestra, Fel'dsher i akusherka ought to pay more attention to the problems of epidemiological analysis and of observation and liquidation of epidemic foci.

507. Kiktenko, V. S. et al., A new method for the examination of air contamination with bacteria. Zh. mikrobiologii, etc. 32 (1961) 7: 6-12.

The authors describe and illustrate a new simple apparatus for entrapping bacteria from the air. In principle the method consists of the use of glass or cotton wool filters, impregnated with equal parts of 3% gelatine solution and vaseline oil. Good results were also obtained by first treating the glass wool filters with paraffine and then impregnating them with the gelatine-vaseline oil mixture or only with 3% gelatine solution.

508. Makirov, K. A. and Karakulov, I. K., The present state and the future prospects of the fight against infectious diseases in Kazakhstan. Zh. mikrobiologii, etc. 32 (1961) 7:12-19. (From the Department of Epidemiology of the Kazakh Medical Institute.)

As the authors emphasize, owing to the almost total lack of adequate medical help, before the revolution diseases like plague, cholera, smallpox and malaria were apt to become epidemic in Kazakhstan. Thus in 1892 cholera affected 21,392 persons; the index of malaria incidence per 10,000 of the population was 596 in 1916. Typhoid and dysentery were frequent.

Under the Soviet regime, hand in hand with great general progress, much progress was also made in medical work in general and in anti-epidemic work in particular. At present 78 sanitary-epidemiological stations function, 1,500 qualified medical men, 100 scientists and about 5,000 assistants are engaged in prophylactic and anti-epidemic work. There are about 200 sanitary-bacteriological laboratories and more than 1,400 disinfecting stations.

Under the Soviet regime great efforts were made to prevent infectious diseases and to localise and eradicate the foci of endemic infections. As a result of this work cholera, smallpox, relapsing fever, glanders, etc. came to disappear. On the other hand, owing to the greatly improved facilities for observation and diagnosis, it was possible to demonstrate the presence of epidemic hepatitis, poliomyelitis, brucellosis, tularemia, Q-fever, tick-borne encephalitis, tick-borne typhus, leptospirosis, listerellosis and helminthiasis. Campaigns against all these diseases are conducted.

Owing to improved living conditions, cultural conditions and energetic prophylactic and anti-epidemic work the incidence of epidemic

diseases, particularly of typhoid, paratyphoid and still more of malaria greatly decreased. The mortality from infectious disease became greatly lowered. Still, the incidence of dysentery, brucellosis, epidemic hepatitis, influenza and infectious diseases of children is considerable.

Turning their attention to research work, the authors state that under the Soviet regime were created an Academy of Sciences, a university, 4 medical institutes, several scientific research institutes (for plague, skin and venereal diseases, tuberculosis, regional pathology, eye diseases, epidemiology, microbiology and hygiene, professional diseases). Brief surveys of the activities of these institutions are given.

As the authors state in the conclusion of their article, in spite of all progress, more effort is necessary to combat some of the infectious diseases, in the first line epidemic hepatitis, bacillary dysentery, brucellosis, tuberculosis and diphtheria. Ways and means for this intensified work are briefly discussed.

509. Karpov, S. P. and Tiazhkun, R. A., Eradication of tularemia in the Tomsk Oblast. Zh. mikrobiologii, etc. 32 (1961) 7:19-24.
(From the Tomsk Vaccine and Serum Institute and the Sanitary-Epidemiological Station of the Tomsk Oblast.)

As maintained by the authors, the main reservoir of tularemia in the Tomsk Oblast is the tick Ixodes persulcatus, while the water-rat Neotoma terrestris, which is much hunted for the sake of its fur, is mainly responsible for passing the infection to man. B. tularensis has been repeatedly isolated from Ixodes persulcatus and the reare tick Dermacentor silvarum as well as from the water-rats, among which repeatedly large epizootics have been observed since 1945. Moreover, B. tularensis has been isolated from two mosquito species (Aedes cinereus and A. excrucians) and the goat Capra hircus, which also played a role in the transmission of the infection to man.

As shown in a table by the authors, during the period from 1950 to 1959 among the 913 tularemia patients seen 67.1% contracted the infection through contact with water rats, 16.7% through insect-bites, while the infection was waterborne in only 5%. Since mainly males, including the school youth, engaged in trapping the water-rats, the incidence of tularemia in them was 74.6% as against 25.4% in the females. The most involved age groups were those from 8-14 years (21.7%), 15-19 years (22.6%) and 20-29 years (25.1%).

The principal method of fighting tularemia in the oblast was vaccination of the rural population with live tularemia vaccine, administered on a large scale since 1950. The total of vaccinations given during the period from 1950 to 1959 was 891,200 (508,400 from 1950-1954 and 382,800 from 1955-1959). During the first five-year period prime attention was paid to the mainly affected raions, in most of which the total population was immunized.

As a result of these campaigns the tularemia incidence dropped from 404 in 1950-1954 to only 9 during the period from 1955-1959. A new plan for vaccination and revaccination against tularemia has been adopted for the period from 1961-1965. In this campaign special attention will be paid to the raions where not many vaccinations had been given recently, because the method had been amply used in 1950-1954.

As the authors postulated in their conclusions, in order to eradicate tularemia it is necessary to vaccinate the total rural population above 7 years.

510. Zaporozhenko, A. IA., Epidemiology and clinical picture of the intestinal form of anthrax. Zh. mikrobiologii, etc. 32 (1961) 7:41-45. (From the Central Scientific-Research Laboratory for Hygiene and Epidemiology, Ministry of Communications.)

The author reports on 42 instances of intestinal anthrax met with among railway workers and their families during the period from 1946 to 1952.

In 17 of these patients the illness was due to the consumption of the meat of animals which had succumbed to anthrax; in 24 infection resulted from the ingestion of other foodstuffs which the individuals had contaminated when eating with unwashed hands after handling anthrax-infected materials; the hands of one of the patients had become contaminated with the blood of a slaughtered anthrax-infected animal.

The intestinal anthrax affections were characterized by a short incubation period (2-3 days), high fever, debility, headache, insomnia, colics, vomiting of bilious material containing blood and meteorism due to intestinal paralysis. The duration of the illness which was invariably fatal, was 3-5 days in the first group of 17 patients, 1-2 days in the 24 sufferers infected by contact.

511. Cherechenko, I. I. and Samsonova, N. I., Brucellosis infection in the raions of the high north. Report III. The clinical manifestations of 'reindeer' brucellosis. Zh. mikrobiologii, etc. 32 (1961) 7: 51-56. (From the Order of Lenin Sechenov Medical Institute 1, Moscow and the Gamaleia Institute of Epidemiology and Mikrobiology, AMS, USSR.)

In two previous communications dealt with in these reviews (see Nos. 453 and 468) the authors tried to elucidate the fundamental features of the epizootology and epidemiology of 'reindeer' brucellosis, showing particularly the role played by brucellosis-affected reindeers in the infection of persons coming in contact with these animals. They report now on the clinical manifestations of brucellosis in the patients infected in this manner.

Evaluating their careful and statistically analysed observations on a total of 189 persons, 46 of whom showed positive sero-allergic reactions for brucellosis, the authors found that the individuals affected with 'reindeer' brucellosis rarely developed all the characteristic signs of the disease. Much more often one could observe only 1 or 2 of these signs accompanied by unspecific disturbances of the health of the patients. Various subjective complaints markedly preponderated over objectively detectable pathological changes. Fifteen of the persons showing positive sero-allergic reactions did not show any signs of illness either at the time of examination or previously. However, in some of the affected persons the illness lasted for a long time, leading to an almost total loss of the working capacity.

512. Aleksandrov, N. I., Gefen, N. E. et al., Aerosol immunization with dry live vaccines and toxoids. Communication VI. Study of the post-vaccinal reactions and the immunological efficacy of aerosol immunization with dry vaccines against brucellosis, tularemia, anthrax and plague in man. Zh. mikrobiologii, etc. 12 (1961) 7:56-62.

The good results obtained when studying the reactions following aerosol immunization with dry vaccines and its efficacy in experimental animals rendered it possible to try this method in man. In 1957-1958 aerosol vaccination against brucellosis, tularemia, anthrax and plague was administered to 987 volunteers. Part of this work was done in the Order of Lenin S. M. Kirov Military-Medical Academy under the direction of Professor I. I. Rogozin. In 1959, 2,194 persons were immunized against brucellosis and anthrax in the Moldavian SSR under the direction of the Deputy Health Minister of that republic, V. A. Malygina.

All persons tested were found to be healthy and to react negatively against the infections concerned in the preliminary tests.

Aerosol immunization was administered to the subjects in special chambers with a content of 3, 8 or 10 m³, in tents with a content of 40 to 160 m³. In a room with a content of 40 m³ (floor space 3.7 x 3.6m, height 2.9m) 40-50 sitting or 60-70 standing persons were simultaneously immunized. In a room of 160 m³ up to 200 persons were simultaneously vaccinated.

In relation to the potency of the vaccines and the size of the rooms used, the dry vaccines were dispersed with a special pulverizator in quantities varying from 2-3 to 20-25 g. Distribution was continued throughout the period of immunization (5-15 minutes).

As described in some detail by the authors, the size of the inhaled vaccine doses assessed either with the aid of a special adsorbing apparatus or with the aid of gas masks provided with gelatin-foam filters.

The local and general reactions following vaccination were determined in the usual manner. The immunological efficacy of the aerosol vaccinations was assessed in the case of anti-brucellosis and anti-tularemia vaccination with the aid of agglutination tests, determination of the opsono-phagocytic index and with skin-allergic tests. In the case of anti-anthrax vaccination skin-allergic tests were made with anthrax allergen; in the case of plague agglutination reactions and complement fixation tests were used.

The observations made by the authors regarding the reactions following the aerosol vaccinations and the immunological efficacy of the latter are set forth in a series of tables, the data of which may be summarized as follows:

Brucellosis--The live anti-brucellosis vaccine prepared from the strain 19-BA was administered in doses ranging from 250 million to 12 billion viable organisms. All doses produced only slight and quickly passing reactions. The immunological reactions following the vaccinations were comparable to those produced by subcutaneous administration of the vaccine. The optimal doses of the live brucellosis vaccine administered in aerosols ranged from 250 to 800 millions of viable organisms.

Tularemia--The live tularemia vaccine was administered in doses ranging from 20 to 200 million organisms of the vaccinal strain 15. Even large doses produced only slight reactions. All doses proved markedly immunogenic. Dosages of 100-200 million appeared to be optimal.

Anthrax--Aerosol vaccinations against anthrax were administered to 1,695, 1,552 of whom received doses ranging from 15-64 million spores and 143 doses of 440-640 million spores. The vaccinations never produced clinically manifest reactions, but the number of leucocytes in the blood became temporarily increased and the erythrocyte sedimentation rate became also temporarily accelerated. The allergic response to all doses of the vaccine was satisfactory.

Plague -Aerosol vaccinations against plague were made with doses of 100-150 million organisms of the vaccinal strains 1, 17 and EV. The postvaccinal reactions were 'comparatively' slight. There were no local reactions and only 5 of the vaccinated had fever. The immunological response to the aerosol vaccination was satisfactory: in 21 out of 30 individuals tested in this respect one observed 15 days after immunization a positive complement fixation reaction (titer 1:10) and in 9 a positive result of agglutination tests (average titer 1:18). After 30 and 45 days the number of the positive reactors decreased, but the titers of the reactions were about the same.

513. Aysarkisian, S. O., Notes on the history of the control of infectious diseases in the Mongolian People's Republic. Zh. mikrobiologii, etc. 32 (1961) 7:66-70.

Referring in this article, which does not lend itself to a brief general review, to plague, the author states that the presence of this disease and its connection with epizootics among the marmots (tarabagans) was known since the 17th century and that the people tried to take precautions against contracting infection from these animals. Thus, at times when epizootics among the tarabagans were rampant, hunting was prohibited and persons who wore coats made from tarabagan furs were not admitted to the temples. Afterwards the problems of plague in Mongolia were studied by Russian scientists, in the first line by D. K. Zabolotni.

As the author maintains, owing to the foundation of a central anti-plague laboratory in Ulan-Bator in 1931 and the establishment of a network of branch anti-plague laboratories, which numbered 7 in 1956, plague is now absent (a claim which is not supported by recent statements in the Soviet medical literature).

514. Gazizova, G. R. and Sergeeva, P. A., Mixed infection with Q-fever and brucellosis in cattle. Zh. mikrobiologii, etc. 42 (1961) 7:117-123.
(From the Kazan Institute of Epidemiology and Hygiene.)

In connection with the detection of Q-fever among the population of the Lenin Raion of the Kazan' Oblast in 1956, the cattle herd of a collective farm situated in that raion was taken under observation. The herd, though affected with Q-fever, was at first found free from brucellosis, but the presence of this infection was established in 1958. Since then both infections continued to occur in the herd and a part of the animals was found to be affected by both.

Summarizing the results of observations they made in (a) 26 heads of cattle infected only with Q-fever; (b) 59 animals with brucellosis and (c) 17 animals with a mixed infection, the authors stated that

1. Complications of Q-fever with brucellosis in cattle led to an exacerbation of the initial infection, resulting in the appearance of clinical symptoms and an increased titer of the complement-fixing antibodies.

2. As shown by serological observations, Q-fever affected the herd at a much slower rate than brucellosis. The reasons for this difference need further investigation.

3. In the Q-fever infected cows as well as in those affected with brucellosis one observed abortions, retention of the placenta and sterility. Q-fever quite often ran a chronic course, as observed up to 3 1/2 years, with exacerbations at the time of calving.

4. Q-fever infection of cattle led to the appearance of complement-fixing antibodies in the blood of the animals, the titer of which increased slowly and rarely exceeded 1:80. In some instances, hand in hand

with clinical improvement, the complement-fixing antibodies disappeared, but they reappeared at the time of exacerbation of the infection during the calving period.

515. Poberezkin, M. N. and Suzdal'tsev, A. N., The importance of epidemiological data in the diagnosis of certain zoo-infections. Sovietskaya meditsina 25 (1961) 7:122-124. (From the Sanitary-Epidemiological Station of the Kuzbyshev Oblast.)

The authors deplore that in the examination of patients insufficient attention is being paid to epidemiological data. This holds true in the first line of sporadic instances of zoonoses, where an exact epidemiological anamnesis and a detailed epidemiological investigation are extremely important for making an exact diagnosis.

The authors refer in this respect firstly to two patients (father and son) who, as a result of contact with an infected water-rat, contracted tularemia with axillary buboes. Since their history was not elicited, at first one of the patients was supposed to suffer from lymphadenitis, the other from lumbago. The proper diagnosis of tularemia and the presence of this infection in the local water-rats was afterwards established. Mass vaccination of the population prevented a spread of the infection.

Similarly, in the case of 10 patients who fell ill about the same time with tularemia, contracted while they worked in vegetable gardens near a river or while catching fish in tularemia-infected lakes, at first the presence of other diseases (tonsillitis, lymphadenitis, influenza, etc.) was diagnosed. When the history of the patients became known, laboratory confirmation of the presence of tularemia was obtained and mass vaccination of the town population was provided.

The presence of tularemia remained unrecognized not only in rural districts but also in hospitals. This held true for instance of a patient who was treated for 3 weeks in a hospital with the diagnosis of pneumonia and tuberculosis of the cervical lymph nodes. As afterwards confirmed by the authors, he had actually contracted water-borne tularemia.

Wrong diagnoses are also made in patients with atypical cutaneous anthrax, as it may be observed in persons previously immunized against this infection or such suffering from concomitant diseases. Thus in one patient, who had contracted anthrax while skinning calves succumbed to this infection, at first the presence of cancer of the lower lip was suspected. Subsequent treatment of this patient, who had been immunized against anthrax 8 months previously, with specific serum gave good results.

On the other hand, 3 patients with cellulitis and erysipelas were supposed to suffer from anthrax, even though their history did not suggest the possibility of this infection.

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Thus, as the authors stressed in their conclusions,

"epidemiological data (epidemiological history, observations and analysis) are of extreme importance for the diagnosis of zoonotic infections."

516. Lebedev, V. N., To the problem of recovery from intestinal anthrax. Sovetskaya meditsina 25 (1961) 7:134-138.
(From the Department of Specially Dangerous Infections of the Sanitary-Epidemiological Station of the Lipetskii Oblast.)

As quoted by the author from the literature, in the past instances of recovery from intestinal anthrax have been extremely rare, if they occurred at all. In contrast to this, he reports two instances of recovery among 6 patients suffering from this form of the infection, whom he saw during the period from 1954 to 1960 among a total of 34 anthrax patients. Detailed histories of these patients are given. It is particularly noteworthy that in both the presence of anthrax was diagnosed at the time of their hospitalization.

Judging from his experience the author reached the following conclusions:

1. Recovery from intestinal anthrax is possible, but only if treatment with massive doses of specific serum, antibiotics and novarsenol is started early.
2. For the purposes of timely diagnosis and early commencement of specific treatment, daily medical observation of all persons who had contact with anthrax-infected animals, for a period of 8 days is indispensable.
3. Prophylactic administration of anti-anthrax serum does not always prevent manifestation of the disease; but since it possibly exerts a favorable influence on the outcome of the disease; it is one of the most important measures in the anthrax foci.
4. According to the author's data, intestinal anthrax is more frequent than it is generally assumed; the proportion of this to other forms of anthrax is 1:6.
5. Since in the Soviet medical literature scanty attention is being paid to the problem of rational treatment of the visceral forms of anthrax, observations on each instance of recovery from such affections ought to be published in the medical journals.